


WHAT IS CLAIMED IS:

1  1. A computer system comprising:
2 an electromagnetic energy source located on a first side of a system
3 board proximate an connector, the electromagnetic energy source for generating
4 electromagnetic energy directed at least toward a second opposing side of the
5 system board; and
6 an electromagnetic energy detector located on the second side of
7 the system board, the electromagnetic energy detector for detecting a presence of
8 electromagnetic energy when a hot-pluggable component is not mated to the
9 connector and the electromagnetic energy is thereby unobstructed by the hot-
10 pluggable component, the electromagnetic energy detector further for detecting
11 an absence of electromagnetic energy when the hot-pluggable component is mated
12 to the connector and the electromagnetic energy is thereby obstructed by the hot-
13 pluggable component.

1 2. The computer system, as recited in claim 1, further comprising a
2 processor for communicating with the electromagnetic energy detector for
3 receiving the detection of the presence or absence of electromagnetic energy by
4 the electromagnetic energy detector.

1 3. The computer system, as recited in claim 2, further comprising a
2 hard drive for storing an indication that the hot-pluggable component is absent
3 when the presence of electromagnetic energy is detected, the hard drive further for
4 storing an indication that the hot-pluggable component is absent when the absence
5 of electromagnetic energy is detected.

1 4. The computer system, as recited in claim 3, wherein the
2 electromagnetic energy is infra-red energy, magnetic energy or ultrasonic energy.

1 5. The computer system of claim 1, wherein the connector is one of
2 an edge connector, a cable connector, a fibre channel connector, and a USB
3 connector.

1 6. A computer system comprising:

2 a means for generating electromagnetic energy located on a first
3 side of a system board proximate a connector, the electromagnetic energy directed
4 at least toward a second opposing side of the system board; and

5 a means for detecting electromagnetic energy located on the second
6 side of the system board, the means for detecting electromagnetic energy detecting
7 a presence of electromagnetic energy when a hot-pluggable component is not
8 mated to the connector and the electromagnetic energy is thereby unobstructed by
9 the hot-pluggable component, the means for detecting electromagnetic energy
10 detector further detecting an absence of electromagnetic energy when the hot-
11 pluggable component is mated to the connector and the electromagnetic energy
12 is thereby obstructed by the hot-pluggable component.

1 7. The computer system, as recited in claim 6, further comprising a
2 processing means for communicating with the means for detecting
3 electromagnetic energy, the processing means for receiving the detection of the
4 presence or absence of electromagnetic energy by the means for detecting
5 electromagnetic energy.

1 8. The computer system, as recited in claim 7, further comprising a
2 means for storing an indication that the hot-pluggable component is absent when
3 the presence of electromagnetic energy is detected and further for storing an
4 indication that the hot-pluggable component is absent when the absence of
5 electromagnetic energy is detected.

1 9. The computer system of claim 6, wherein the connector is an edge
2 connector.

1 10. A computer system comprising:
2 a first electromagnetic energy source located on a first side of a
3 system board proximate a first end of a connector, the first electromagnetic energy
4 source for generating electromagnetic energy directed at least toward a second
5 side of the system board opposing the first electromagnetic energy source;
6 a second electromagnetic energy source located on the first side of
7 the system board proximate a second end of the connector, the second
8 electromagnetic energy source for generating electromagnetic energy directed at
9 least toward the second side of the system board opposing the second
10 electromagnetic energy source;
11 a first electromagnetic energy detector located on the second side
12 of the system board, the first electromagnetic energy detector for detecting a
13 presence of electromagnetic energy from the first electromagnetic energy source
14 when a hot-pluggable component is not mated to the connector and the
15 electromagnetic energy from the first electromagnetic energy source is thereby
16 unobstructed by the hot-pluggable component, the first electromagnetic energy
17 detector further for detecting an absence of the electromagnetic energy from the
18 first electromagnetic energy source when the hot-pluggable component is mated

19 to the connector and the electromagnetic energy from the first electromagnetic
20 energy source is thereby obstructed by the hot-pluggable component.

21 a second electromagnetic energy detector located on the second
22 side of the system board, the second electromagnetic energy detector for detecting
23 a presence of electromagnetic energy from the second electromagnetic energy
24 source when the hot-pluggable component is not mated to the connector and the
25 electromagnetic energy from the second electromagnetic energy source is thereby
26 unobstructed by the hot-pluggable component, the second electromagnetic energy
27 detector further for detecting an absence of the electromagnetic energy from the
28 second electromagnetic energy source when the hot-pluggable component is
29 mated to the edge connector and the electromagnetic energy from the second
30 electromagnetic energy source is thereby obstructed by the hot-pluggable
31 component.

1 11. The computer system of claim 10, wherein the connector is an edge
2 connector.

1 12. A method for detecting the presence of a hot-pluggable component
2 in a computer system comprising the steps of:

3 generating electromagnetic energy on a first side of a system board
4 proximate a connector, the electromagnetic energy directed at least toward a
5 second opposing side of the system board;

6 detecting a presence of the electromagnetic energy on the second
7 side of the system board when the hot-pluggable component is not mated to the
8 connector and the electromagnetic energy is thereby unobstructed by the hot-
9 pluggable component; and

10 detecting an absence of electromagnetic energy on the second side
11 of the system board when the hot-pluggable component is mated to the connector
12 and the electromagnetic energy is thereby obstructed by the hot-pluggable
13 component.

1 13. The method, as recited in claim 12, further comprising the step of
2 communicating the detected presence or absence of electromagnetic energy to a
3 processor.

1 14. The method, as recited in claim 13, further comprising the steps of:
2 storing an indication that the hot-pluggable component is absent
3 when the presence of electromagnetic energy is detected; and
4 storing an indication that the hot-pluggable component is present
5 when the absence of electromagnetic energy is detected.

1 15. The method, as recited in claim 12, further comprising the step of
2 locating a material which is impervious to the electromagnetic energy at a position
3 on the hot-pluggable component so that the material obstructs the electromagnetic
4 energy when the hot-pluggable component is mated to the connector.

1 16. The method, as recited in claim 12, wherein the step of generating
2 the electromagnetic energy comprises the step of generating a beam of
3 electromagnetic energy directed toward the second opposing side of the system
4 board.

1 17. The method, as recited in claim 12, wherein the step of generating
2 the electromagnetic energy comprises the step of:

3 generating a plurality of independent beams of electromagnetic
4 energy directed toward the second opposing side of the system board, a source of
5 each of the plurality of beams located progressively more distant from the system
6 board; and

7 further wherein the steps of detecting the presence or absence of the
8 electromagnetic energy comprises the step of:

9 independently detecting the presence or absence of each of the
10 plurality of beams on the second side of the system board, a detector of each of the
11 plurality of beams located progressively more distant from the system board, the
12 plurality of beams sequentially becoming obstructed as the hot-pluggable
13 component is mated to the connector and the electromagnetic energy is obstructed
14 by the hot-pluggable component and the beams sequentially becoming
15 unobstructed as the hot-pluggable component is removed from the connector and
16 the electromagnetic thereby becomes unobstructed by the hot-pluggable
17 component indicating the approach or retreat of the hot-pluggable component
18 respectively.

1 18. The method, as recited in claim 12, wherein the electromagnetic
2 energy is infra-red energy.